fanciful speculation, it is at least significant that it should have presented no improbability to the mind of an observer before whom the insects concerned were constantly present as a living reality.

The work on mimicry was brought to a close with the account, published in 1883, of the torn wings collected from specimens of an inedible butterfly, *Acræa thalia*, in order to show that a protected insect was not immune from tentative attacks on the part of birds. Still, even if the evidence thereon be regarded as conclusive, it scarcely indicates the difference in amount between the attacks made on protected and unprotected species respectively, which must exist under Müller's hypothesis. And in view of the doubts which have been expressed by competent observers as to the prevalence of butterfly-destruction on the part of birds, the subject calls for further and more exhaustive investigation. Since Müller's work, little progress has been made on the study of mimicry by observations on the living forms.

Amongst the many other entomological subjects investigated by him are cases of dimorphism in fig-insects and in gnats, in a species of which he found two kinds of females, one large-eyed and honey-sucking, the other small-eyed and blood-sucking; the case-making of Phryganeidæ and the development, in some cases very remarkable, of several species of aquatic insects. As recently as 1895 he published in the *Transactions* of the Entomological Society of London a paper on the metamorphoses of an aquatic fly, the material for which, however, had been worked out some fourteen years previously, when the drawings were made. These are, perhaps, the best published examples of his skill as a draughtsman.

In botany Müller's work, like that of his brother, the author of "Die Befruchtung der Blumen," deals mainly with the fertilisation of plants, and includes a number of important observations on heterostylism, hybridisation and self-sterility, many of which are recorded in Darwin's "Animals and Plants under Domestication" and "Cross and Self-fertilisation of Plants." The experimental results obtained, *e.g.* in the fertilisation of orchids, are of great interest; in a series of cases he was able to establish a progressive gradation in self-sterility from species in which the flower was sterile to its own pollen but not to that taken from other flowers on the same plant, up to those in which entire fertility was only to be obtained by crossing, the pollen of a different species being prepotent. Most remarkable of all, in certain species the pollen of a flower was found actually to have a destructive effect upon its own stigma.

His later years were mainly given over to botanical studies, but the period was clouded with a succession of misfortunes which he bore courageously, not losing his interest in research, although his activity was diminished. For him science meant the advancement of knowledge, and he looked for no practical benefits for himself from it. Assuredly they did not come unsought. As far back as 1880 he suffered gravely from the destruction of his property by a flood, a loss which drew from Darwin a touching expression of sympathy and a desire to aid. At a later period the Brazilian Government, with singular illiberality, deprived him of his post without pensioning him, and left him in straitened circumstances; and as recently as 1894 he was imprisoned by rebels and tried by court-martial. In the same year the death of his wife took place, but the bereavement, heavy as it was, did not affect him so deeply as did the loss of a beloved daughter, herself an excellent observer, who, at eleven years of age, discovered the circumnutation of *Linum*. She died at Berlin, and the blow deprived her father for a long time of all desire for work. But his indomitable enthusiasm overcame even this trouble, and his researches were carried on up to the last year of his life.

To call Müller by Darwin's happily-bestowed title is to recognise not merely the energy, perseverance and capacity for observation which he brought to his work, but also the discrimination which led him to the choice of subjects for study and the closely-reasoned and philosophic interpretation of his results. If his name is not associated with any marked advance in thought, except on one or two special questions connected with natural selection, it is because he found his intellectual faith in the theory which he set himself to developing and strengthening. He was content, in fact, to assist in the building of the structure of which another was architect, and in this task his services have been great. It may be questioned whether any other naturalist, save Darwin himself, has given the world so large and original a mass of observations of the kind by which natural selection has been most strongly supported.

To take a just and comprehensive survey of his labours is by no means easy. His papers are scattered through many journals, and a full bibliography of them is as yet wanting; even the list, down to 1883, given in the "Royal Society Catalogue of Scientific Papers" is incomplete, omitting as it does all his contributions to "Kosmos." Moreover, they cover a wider range than most naturalists take for their province, and yet are far from containing the whole of his results. Not a few of his notes have been made public by the friends to whom he communicated them with characteristic generosity; others still lie buried in his letters and memoranda. And a reference to such papers as those on mimicry makes it plain that but a part of his published observations have found their way into common scientific knowledge, and many still wait to be incorporated into the fabric of biology.

More than five-and-twenty years have passed since Darwin wrote to Müller: "I earnestly hope that you will keep notes of all your letters, and that some day you will publish a book, 'Notes of a Naturalist in S. Brazil,' or some such title." But the idea did not attract, and the wish, though echoed by many friends, was destined to remain unfulfilled. One can therefore but express the hope that, now that his labours are ended, such a record of them may be given to the world as shall form a worthy memorial of so earnest and single-minded a lover of nature.

W. F. H. B.

NOTES.

WE invite attention to the change of address of the publishers of NATURE, announced in our advertisement columns. After Saturday next, October 9, all communications for the editor of NATURE should be sent to St. Martin's Street, London, W.C.

WE regret to announce that Dr. Charles Smart Roy, F.R.S., of Trinity College, Professor of Pathology in the University of Cambridge, died on Monday night, at the age of forty-three years.

THE Accademia dei Lincei have just elected Prof. G. H. Darwin, F.R.S., and the Right Hon. G. J. Goschen, M.P., F.R.S., foreign members of the Academy.

IT is stated in the *Athenæum* that the well-known Dr. Adolf Harnack is engaged on a "History of the Prussian Academy of Sciences," which is to appear in the year 1900, the two hundredth anniversary of its foundation.

THE annual address of the President of the Royal Photographic Society will be delivered at the meeting of the Society on Tuesday next, October 12. The presentation of the medals will take place on the same evening.

THE *Geological Magazine* makes the following announcement with reference to the forest-bed of the Norfolk coast:—This interesting deposit, so rich in organic remains, has been carefully worked for more than twenty years by Mr. A. C. Savin, of Cromer, who during that period had accumulated about 1900 specimens of Vertebrata, many of which had been described and figured by Mr. E. T. Newton, F.R.S., Prof. Leith Adams, Prof. Lankester, F.R.S., and others. Mr. Savin's collection has just been acquired by the British Museum (Natural History), where it will be preserved for all time, and form a most unique and valuable addition to our National Museum, as well as add greatly to our knowledge of the fauna of this old Pliocene land-surface.

THE *Forres, Elgin, and Nairn Gazette* contains a paragraph to the effect that within the last few weeks, by the kindness of Lady Prestwich and the Trustees of the British Museum, an interesting and instructive series of fossils, ranging through the whole scale of the fossiliferous rocks and consisting of 833 specimens, has been presented to the Falconer Museum at Forres. This valuable collection has been systematically arranged by Mr. Bullen Newton, of the British Museum, and it forms an addition of great educational value to the contents of the Falconer Museum. The thanks of the Trustees and Managers of the Falconer Museum are due to the authorities of the British Museum for their generosity, but especially to Lady Prestwich, to whose interest in the Museum, which was erected by funds bequeathed for the purpose by her uncles, they are mainly indebted for this valuable gift.

THE death is announced of the Rev. Andrew Matthews, distinguished for his work on micro-coleoptera. We learn from the *Entomologist* that in 1872 Mr. Matthews published the first volume of "Trichopterygia illustrata et descripta," with thirty-one plates drawn by himself; and in his eightieth year he completed a second volume, also illustrated by his own hand: this is now with the publisher. Among his other works are papers on the genera *Hydroscapha*, *Amblyopinus*, *Myllæna*; and synopses of the Trichopterygidæ of Europe and North America. He also described the species of his particular group of Coleoptera in "Biologia Centrali Americana."

THE North German Lloyd Steamer, *Kaiser Wilhelm der Grosse*, which has recently made the record passage for speed on her maiden voyage from Southampton to New York in 5 days 22 hours, or an average of 21·39 knots, is the largest passenger steamer afloat. Her dimensions, however, will be exceeded by the *Oceanic*, now building for the White Star Company by Messrs. Harland and Wolff at Belfast, and which is expected to be ready for launching at the beginning of next year. The length of this vessel will be 704 feet, or 25 feet longer than the ill-fated *Great Eastern*, and 55 feet longer than the *Kaiser Wilhelm*. Her gross tonnage will be 17,000 and she is to be adapted for use as an armed cruiser, her coal-carrying capacity when so used being, at a speed of 12 knots, sufficient for 23,400 miles, or practically for a voyage round the world. The speed, when in use for passenger traffic to and from New York, is, as at present designed, to give an average of 21 knots.

AN international conference of leather trades chemists, held on Tuesday and Wednesday, September 28 and 29, at Herold's Institute, Bermondsey (Leathersellers' Company's Tanning School), and at which Great Britain, the United States of America, Austria, Denmark, France, Germany, Norway and Sweden were the countries represented, concluded its proceedings on the 30th ult., by a joint meeting of the leather trade and its allies at Leathersellers' Hall, kindly lent by the Worshipful Company of Leathersellers. The object of the conference was chiefly to arrive at uniformity in the matter of tanning analyses, and to formally establish an International Association of Leather Trades Chemists. The conference was opened by Mr. C. T. Millis, Principal of Herold's Institute, and representing the Governors of the Borough Polytechnic, of which the Institute is a branch; the chair being afterwards taken by Dr. Perkin, F.R.S. The Right Hon. W. L. Jackson presided at the Leathersellers' Hall meeting. As the first president of the International Association, the conference elected Mr. Alfred Seymour-Jones; as honorary secretaries, Prof. H. R. Procter (Yorkshire College, Leeds) and Dr. J. Gordon Parker (Herold's Institute, London).

THE *Times* prints the following dispatches, received from its correspondent at Melbourne: October 3: "The scientific expedition which was despatched to the Ellice Islands by the Sydney Geographical Society, under Prof. David, has confirmed Darwin's theory of the formation of coral islands. Prof. David reports from Samoa that the expedition has been a decided success. The diamond drill went down 557 feet in the coral without reaching the bottom." October 4: "With reference to the borings on the Ellice Islands to obtain information as to the formation of coral islands, Prof. David states that the results to 487 feet were inconclusive. Beyond that, they strongly favour Darwin's theory, though a final judgment depends upon microscopic examination of the drill cores. The borings are being continued." Miss E. Walker contributed 500*l.* towards the expenses of this expedition, and the Royal Society 100*l.* directly, and probably another 100*l.* through its coral-boring committee. The expedition was under the auspices of the Royal Geographical Society of Australasia, and was directed by Prof. T. W. E. David, of Sydney. In view of the difficulties previously met with at Funafuti, a special boring plant was provided weighing over 25 tons, and capable of boring to a depth of 1000 feet. It is understood that the core obtained will be forwarded first to the Royal Society of London, which will return one-half to the Royal Geographical Society of Australasia.

THE Beavers exhibited in the Zoological Gardens are mostly of the American species (*Castor canadensis*), though specimens of the European form (*C. fiber*) have been occasionally obtained from the Lower Rhone, and Beavers are still to be met with in some districts on the Elbe and on the Danube. An excellent memoir lately issued by Prof. Collett, of Christiania ("Bæveren i Norge"), gives us an account of the Beavers still remaining in Norway, where it had formerly a very extended distribution. Prof. Collett thinks that in all probability the Beaver will last in Norway in a state of nature "well into the next century," provided a small amount of care is taken to protect it. The number of individuals existing in Norway at present he estimates as about 100. In 1880 Mr. Cocks considered that there were only about 60, so that there may have been a slight increase in recent years.

UNDER the name *Hylobates henrici*, M. E. de Pousargues describes a new species of Gibbon from the interior of Tonquin. It is based on a skin presented to the Muséum d'Histoire naturelle of Paris by Prince Henry of Orleans, which was obtained by the Prince in 1892 at Lai-Chan, a little to the north of the Black River of Tonquin, and not far from the frontier of the Chinese province of Yunan.

MR. H. SAVAGE LANDOR, who left England in March last, commissioned by Mr. Harmsworth, the proprietor of the *Daily Mail*, to endeavour to enter the sacred city of Lhassa, in Tibet, has not been successful in his undertaking. News has just been received that a few days after crossing the frontier of Tibet, disguised as a Chinese pilgrim, all except two of Mr. Landor's men abandoned him. In spite of this, Mr. Landor continued on his journey, but eventually he lost all his provisions, and by an act of treachery was made a prisoner by the Tibetans. He was sentenced to be beheaded, but at the last moment the Grand

Lama stopped the executioner, and commuted the sentence of decapitation to the torture of the stretching log—a kind of rack upon which Mr. Landor was chained for eight days—after which he was released. Mr. Landor has now returned to India, suffering from the effects of the torture to which he was subjected, and which he half anticipated before he set out upon his hazardous journey.

A CURIOUS illustration of the power of light matter to perforate more substantial substances when driven at a high velocity is stated by the *Engineer* to have occurred in the Royal Arsenal a few days ago. In the course of experiments on firing gas in mines, conducted by Captain Cooper Key, R.A., under the Home Office, a special gun is employed to do duty for a bore-hole with a charge of high explosive, and pressed cylinders of raw dry clay 3 in. long and 1⅞ in. in diameter are used to represent tamping. These "shots" are made to act in various mixtures of air, coal-dust, gas, &c., and to stop the course of plug, &c., eventually, a cast-iron target plate, 1 in. thick, was placed 25 ft. in front, at an angle of 45°, in order to break up everything into dust and throw it upwards. After three or four shots with this arrangement the clay plug, weighing 7½ ozs., perforated the inch iron plate, and the hole thus made has been steadily extended since. The familiar tallow candle passing through a door must hide its head before a 7½-oz. plug of clay perforating an iron plate an inch thick at an angle of 45°. Doubtless the velocity must be tremendous. It is pointed out that the velocity for a hard cylinder of this weight and size to cut through an inch of wrought iron at 45° would be over 1800 foot-seconds. With cast-iron and clay and the three or four repeated blows, everything is so greatly altered that there is little more to be said than that the effect is remarkable and unexpected.

AN important contribution to the controversy respecting the great Alpine double-fold has been issued by Dr. Rothpletz of Munich, in the last number of the *Zeit. deut. geol. Gesell.* (vol. xlix. pp. 1–17). In this paper Rothpletz examines in detail the evidence which led the orthodox school of Swiss geologists to the belief that the Glärnisch massif has been formed by a double fold. It is well known from Heim's great work, the "Mechanismus der Gebirgsbildung," that the summit of the Glärnisch consists of Lower Cretaceous rocks, which rest on deposits belonging to a later part of the same system. Baltzer accordingly explained this inversion by a complex series of folds and double folds. Rothpletz, however, by a magnificent piece of detailed field-work, has shown that the arrangement can be more easily explained as a case of over-thrust faulting. The Glärnisch, it may be added, stands on the western border of the mountain group, whose complicated structure Heim's double-fold of Glarus was invoked to explain.

A SYNOPSIS of a report on an experimental boring for petroleum, carried out by Mr. W. A. Fraser at Athabasca Landing, Alberta district, is given by Dr. G. M. Dawson in the Annual Report (vol. viii.) recently issued by the Geological Survey of Canada. Where the basal sandstone of the Cretaceous formation comes to the surface, about 130 miles north of the place of the boring on the Athabasca River, it is charged with bituminous matter, and from the observed dip of the Cretaceous rocks it was hoped that these "tar sands" would be found at a depth of from 1200 to 1500 feet. This estimate has proved to be a little under the mark, but the work that has been done indicates that the top of the tar sands should be reached at about 1800 feet. When Dr. Dawson visited the boring, a depth of 1731 feet had been reached, and it was proposed to continue down to 2000 feet, so as not only to pass through the tar sands, but also to penetrate, for some distance, the rocks—presumably limestones of Devonian age—underlying them. It is pointed out that there can be no reasonable doubt that an important oil-field exists in northern Alberta and Athabasca, and the facts gained by the experimental boring of the Canadian Geological Survey has rendered it possible to estimate very closely the depth at which the tar sands may be looked for along the Athabasca Valley for a distance of about 150 miles. The development of deposits of petroleum in this region is of such great importance that Dr. Dawson should not lack support in the plan he advocates of sinking several experimental wells simultaneously in different parts of the great area, which the geological conditions show to be favourable to the occurrence of petroleum in quantities of commercial value.

THE Explosives Department of the Home Office has (says the *Times*) recently had under consideration the question of the restrictions to be applied to the manufacture and keeping of acetylene gas, and has conducted various experiments with the object of gaining information on this matter. The results show conclusively that acetylene gas *per se*, when under a pressure of something less than two atmospheres, is violently explosive; whereas at a pressure less than one a half atmospheres it appears to be reasonably free from liability to explosion, provided it is not admixed with oxygen or atmospheric air. For commercial and practical purposes it is considered sufficient to allow a pressure of 20 inches of water above that of the atmosphere (*i.e.* roughly about one and one-twentieth atmospheres), and it is accordingly proposed to draw the safety line at this point, and to declare acetylene when subject to a higher pressure to be an "explosive" within the meaning of the Explosives Act, 1875. In France and Germany, the authorities have fixed the limit of danger at one and a half and one and one-tenth atmospheres respectively, and have imposed prohibitions or restrictions on the keeping or manufacture of the gas when it is at a higher pressure.

DR. AL. BLUDAU publishes in *Petermann's Mittheilungen* (viii. 1897) a second instalment of his work on the measurement of the great drainage basins of the world. Dealing this time with Africa, he discusses in detail some of the divisions offering special difficulty in definition, and finds that of the total area of 29·3 millions of square kilometres, 36 per cent. drain to the Atlantic, 15 per cent. to the Mediterranean, and 18 per cent. to the Indian Ocean, while the neutral regions form the remaining 31 per cent., the Sahara alone occupying six and three-quarter millions of square kilometres.

A BRIEF preliminary report by the surviving officers of the second Bòttego Expedition in Somaliland, Lieuts. Vannutelli and Citerni, with a route map, is contained in a recent bulletin of the Italian Geographical Society. The expedition started from Brava in October 1895, and reached the north end of Lake Rudolf in August 1896, whence Dr. Sacchi set out in the November following, intending to return southwards with the zoological and ethnographical collections; his fate seems still very uncertain. The main body of the expedition left the camp on Lake Rudolf about the same time, and skirted the Ethiopian highlands, travelling in a north-westerly direction; but owing to the unhealthy climate Captain Bòttego was compelled to make for the mountains, where he had dealings with the chief of Lega and Sajo, who, however, proved treacherous, and in the fight which ensued Captain Bòttego lost his life. The survivors were kept prisoners for a time, but were ultimately sent to Adis Abeba by the Emperor Menelik.

IN the *Bollettino della Società geografica Italiana*, Signor G. Roncagli discusses the tides of the Straits of Magellan between Cape de las Virgines and Punta Arenas, the special question being the retardation of the tidal stream by some three hours in mid-channel, compared with the shore on either side, first pointed out by King and Fitzroy. He suggests as an explanation of the phenomenon, that on account of the peculiar shape of the channel a gravity current is superposed on the normal tidal stream, in such a manner that while at the sides the tide presents the ordinary phases, in the centre the gravitational movement is first against the tidal movement, then in equilibrium with it, giving slack water for a longer or shorter period, and finally in the same direction with it.

An account of the quantity and value of the minerals obtained from mines, quarries, brine-works, &c., in the United Kingdom, during the year 1896, is given in a Blue Book just issued by the Home Office. Many facts of interest are contained in the report, in addition to the statistical information; but the limitations of space will only permit us to refer to a few of them. In 1896 the total output of coal was 195,361,260 tons; of this amount, 9309 tons were obtained from open quarries. The seams worked in England vary from eleven or twelve inches to thirty feet in thickness, and in Scotland seams of cannel coal only six inches in thickness are being worked. The only mine worked for cobalt and nickel ore is in Flintshire; and, after being idle for several years, it has lately been re-opened. The mine affords an instance of the occurrence of the mineral asbolane with red clay in irregular cavities in the carboniferous limestone. Copper mining is rapidly decreasing in importance in Britain, only 9168 tons having been produced in 1896, whereas the output in 1863 was 210,000 tons. Flint-mining still survives at Brandon, in Suffolk; the produce of a few shallow mines worked in a most primitive fashion suffices to supply the gradually diminishing demand for gun flints, which are exported to savage countries. Referring to gold ore, the report points out that, compared with the yield of the colonies and many countries, the amount of gold obtained in Britain is insignificant; nevertheless, mineral veins in North Wales have from time to time furnished considerable quantities of rich auriferous quartz. In 1896 the five mines in Merionethshire produced 2765 tons of ore, from which 1352½ ounces of gold, having a value of 5035*l.* were obtained. This, however, is a much lower output than that of the previous year. The principal iron-producing districts at the present time are Cleveland or North Yorkshire, yielding over five million tons annually, and Cumberland and North Lancashire, with an output of over two million tons. The Cleveland ore is an earthy carbonate containing about 30 per cent. of metal, while the red hæmatite of the two other counties yields 50 to 60 per cent. The total quantity of iron ore obtained from our mines and quarries last year was twelve and a half million tons. Appended to the report are tables showing the production of minerals in the British Colonies and Dependencies.

The Weekly Weather Reports issued by the Meteorological Office show that for the nine months ending with September the rainfall had reached or exceeded the average in all districts of the United Kingdom, except in Scotland. The greatest excess has occurred in the south-west of England, where it amounts to six inches, and in Ireland. During the severe thunderstorm which occurred over the southern and eastern parts of England at the close of the month, amounts exceeding an inch were recorded at many places, the fall in the metropolis (1·03 inch) being the greatest in twenty-four hours since the beginning of the year; about one and a half inches fell at Cambridge, being about three parts of the mean for the month, and over two inches at Hillington (Norfolk). The greatest deficiency (2·7 inch) is in the north of Scotland, notwithstanding that more than an inch fell at some places in the twenty-four hours ending on the morning of September 30, during which period the heavy storms occurred in the south of England.

We have received from Prof. A. Klossovsky a copy of the *Annales* of the Odessa Observatory, for the year 1896. One of the most serious operations during the year has been the erection of magnetic variation instruments in an underground room of the observatory. In this work the valuable assistance of Dr. Leyst, of the Pavlovsk Observatory, has been obtained. In addition to the usual meteorological and magnetic observations, a special study has been made of the movement and height of the clouds during the year, in accordance with the scheme of the International Meteorological Committee. Some interesting experiments have also been made upon the ascending and descending currents of the atmosphere by means of an anemometer turning in a vertical direction. The results show that in the diurnal period the ascending currents are more frequent than the descending, the hours being in the proportion of 8 : 1. The maximum motion occurs at 1h. p.m., and the minimum at 4h. a.m. The regular staff of the observatory, two in number, is absurdly small for the amount of good work done; the publication of the results is due to the liberality of the Municipality of Odessa.

The South Saxons have been investigated by Mr. R. J. Horton-Smith (*Journ. Anth. Inst.* xxvi. p. 81). His studies are based on a collection of fourteen skulls, excavated by Mr. C. H. Read at Goring in Sussex, the associated ornaments proving them to be of early Saxon age. This collection was supplemented by a study of West Saxon, East Anglian, and other British skulls in the Cambridge Museum. Mr. Horton-Smith arrives at the following conclusions:—The South Saxons in Britain were not an absolutely pure race, but had a little British blood in them. The Wessex Saxons were still less pure, owing to their more frequent intermarriage with the British population. Dr. Beddoe's researches are confirmed that the pre-Saxon population predominates in the upper valley of the Bristol Avon; but the population of the Cirencester district is chiefly Saxon, though containing a slightly larger admixture of British blood than is the case in East and South Wessex. The East Anglians have a form of skull slightly different from that of the South Saxons. It is rather broader, less flattened, the orbits are higher, the face relatively longer, and the cranial capacity larger. Mr. Park-Harrison believed that the projecting (prosopic) nose of the modern English was derived from the Angles, and not from the Saxons. According to Mr. Horton-Smith's observations the reverse is the case.

A bacterial disease of the common "squash-bug," *Anasa tristis*, has been studied by Mr. B. M. Duggan at the Illinois State Laboratory. It is readily communicated to "chinch-bugs," and is the first genuine bacterial disease of hemipterous insects known. The parasite has been named *Bacillus entomotoxicon.* A disease which attacks the capsules of the cotton-plant in Alabama has also been worked out in the Agricultural Experiment Station at Auburn, Ala., by Mr. J. M. Stedman, and is referred to a hitherto undescribed microbe, which he names *Bacillus gossypinus*.

We have received a copy of "Botanical Observations on the Azores," by William Trelease (from the eighth annual report of the Missouri Botanical Garden). The observations were made and specimens collected in order to obtain information as to the endemic and naturalised flora of the Azores group. Very few of the species described are, however, endemic, most of the existing species having evidently been introduced by drift, migratory birds, &c., and by human agency since the discovery of the islands. Mr. Trelease remarks: "Though it might, perhaps, be expected, no differentiation has yet been shown comparable with that seen in the plants of different islands of the Galapagos group in the Pacific, where specific or varietal differentiation is strongly marked, but where communication between the several islands is far more restricted than in the Azores."

To the list of forthcoming scientific books, given in last week's Nature, we are now able to add the following:—The Cotton Press announces:—"Synopsis of Diseases and their Treatment," by Bornal, and "Notes Introductory to the Study of the Animal Alkaloids for Students," by Dr. A. M. Brown. Messrs. Sampson Low and Co., Ltd., promise:—"The Wild Flower Journal," by Mrs. Arthur Bell; "The Manufacture of Leather," by Charles T. Davis, new and revised edition, illustrated; "How to treat Accidents and Illnesses," by H. Morten, new edition, illustrated; "A Treatise on Paper-Making," by Carl Hofmann, new edition in parts, illustrated. Among Mr. Murray's announcements we notice:—"A Flower Hunter in Queensland," by Mrs. Rowan, illustrated. In Messrs. Nelson and Sons' list we find:—"Rambles among the Wild Flowers," by Dr. M. C. Cooke, illustrated. Mr. J. C. Nimmo announces:—"British Game Birds and Wild Fowl," by Dr. B. R. Morris, revised and brought up to date by W. B. Tegetmeier, 2 vols., illustrated. Messrs. George Philip and Son's announcements include:—"Life Size Anatomical Model of the Human Body, for Class Use"; "Model of a Locomotive Steam Engine, with an historical sketch and brief description of the working parts for the use of general readers and elementary students," by H. H. P. Powles; "Indian Frontier, a map of the North Western Frontier of India, with insets (1) showing the overland route to India, (2) a military map of the Indian Empire" (scale: 55 miles to 1 inch; size: 22 × 30 inches); "Klondike Gold Fields, a map of British Columbia showing the Klondike, Cariboo, Kootenay and other Gold Fields, with inset map of West Canada showing the route to the new Gold Fields" (scale: 47 miles to 1 inch; size: 22 × 30 inches); "Philips' Revolving Planisphere and Perpetual Calendar" (special edition for desk use); Messrs. G. P. Putnam's Sons give notice of:—"Religions of Primitive Peoples," by Dr. D. G. Brinton, and "The Liver of Dyspeptics," by Dr. Émile Boix. Messrs. Rivington and Co. promise:—Handbooks of Practical Science, in three books, to be published separately: No. 1, "Physical Measurements"; No. 2, "Chemical Experiments"; No. 3, "Experimental Mechanics," by G. H. Wyatt; and a New Edition of "Elementary Non-Metallic Chemistry," by S. R. Trotman. Messrs. Smith, Elder, and Co.'s list contains:—"Reference Book of Practical Therapeutics," by various authors, edited by Dr. F. P. Foster, 2 vols; "A Practical Treatise on Traumatic Separation of the Epiphyses, including the Anatomy of the Ephiphyses, the Pathological Anatomy, Symptoms, Treatment, and Results of Traumatic Separations"; "Spinal Caries," by Noble Smith, new edition, illustrated. The list of the University Correspondence College Press includes:—"A Manual of Psychology," by G. F. Stout; "The Tutorial Algebra," by W. Briggs, and Prof. G. H. Bryan, F.R.S.; Part i. Elementary Course; Part ii. Advanced Course; "Advanced Mechanics," by W. Briggs, and Prof. G. H. Bryan, F.R.S.; Part i. Dynamics, Science and Art; "Elementary Text-book of Mechanics," second edition, by W. Briggs, and Prof. G. H. Bryan, F.R.S.; "Properties of Matter," by E. Catchpool; "First Stage Magnetism and Electricity," by Dr. R. H. Jude; "An Elementary Text-book of Sound," by John Don; "The Tutorial Chemistry," by Dr. G. H. Bailey, Part ii. Metals.

The additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, a Toque Monkey (*Macacus pileatus*) from Ceylon, a Sooty Mangabey (*Cercocebus fuliginosus*), a White-crowned Mangabey (*Cercocebus æthiops*) from West Africa, presented by Mr. W. S. Gilbert; a White-fronted Lemur (*Lemur albifrons*) from Madagascar, presented by Mr. George F. Gardner; a Rufous Rat Kangaroo (*Æpyprymnus rufescens*) from New South Wales, presented by Dr. J. S. Williams; a Greater Black-backed Gull (*Larus marinus*), four Lesser Black-backed Gulls (*Larus fuscus*), British, presented by Mr. W. J. Simpson Ladell; four Rollers (*Coracias garrulus*), twenty Marbled Ducks (*Marmaronetta angustirostris*), two Pochards (*Fuligula ferina*), six Black-bellied Sand Grouse (*Pterocles arenarius*), two Pintail Sand Grouse (*Pterocles alchata*), three Stone Curlews (*Ædicnemus*) *scolopax*), twelve Pratincoles (*Gareola pratincola*), nine Great Bustards (*Otis tarda*), four Little Bustards (*Otis tetrax*), two Slender Gulls (*Larus gelastes*) from Spain, two Serrated Terrapins (*Chrysemys scripta*) from North America, four Reeve's Terrapins (*Damonia reevesi*) from China, an Amboina Box Terrapin (*Cyclemmys amboinensis*) from the East Indies, a Bell's Cinixys (*Cinixys belliana*), two —— Sternotheres (*Sternothærus adansoni*) from West Africa, a Lesueur's Gecko (*Ædura lesueuri*), a White's Skink (*Egernia whitii*), two Cunningham's Skinks (*Egernia cunninghami*), two Lesueur's Skinks (*Lygosoma lesueuri*), a —— Skink (*Lygosoma mustelinum*), thirty-one —— Skinks (*Lygosoma decresiense*) from Australia, deposited.

OUR ASTRONOMICAL COLUMN.

New Divisions in the Rings of Saturn.—Prof. J. M. Schaeberle announces (*Astronomical Journal*, No. 411) that during the present opposition of Saturn he has detected a partial division in the B- or middle-ring of Saturn not previously seen by him. The new division is said to be $0''\cdot7$ from the inner edge of the B-ring, and the width about the same as that of the Cassini division. The fact that the new division is not conspicuous, like Cassini's, suggests to Prof. Schaeberle that the separation is not yet complete, and that the interval which he has detected contains matter which reflects light to such an extent that unless the conditions of seeing are very good it is indistinguishable from the general appearance of the B-ring. He has not been able to see the division between the middle-ring and the crape-ring, announced by Herr Brenner. Writing to the *Observatory*, Herr Brenner says:—"On August 27 I discovered two new divisions in the rings of Saturn; the one between the Manora division and the inner edge of the crape-ring is identical with the Struve division, discovered in 1850, and seen again in 1887 by Struvaert. The other division, between those of Encke and Cassini, is quite new, and was never before seen. Nevertheless it was more conspicuous than the Encke division and more extended too." In connection with these announcements it may be worth referring to a paper by Captain H. Kater, in the *Memoirs* of the Royal Astronomical Society (vol. iv. p. 383, 1831). Enough divisions in the outer-ring are there described and figured to furnish astronomers with material for contemplation for some time to come.

A New Meteor Photograph.—We are glad that increased attention is being given to the photography of meteors. Prof. E. E. Barnard states (*Astronomical Journal*, No. 412) that he exposed photographic plates in two cameras on the mornings of August 10, 11 and 12, with the object of securing meteor trails. Only one meteor trail was secured, but this was a very fine one, the full length of the path, about 8°, being recorded upon the plates. The trail commences at R.A. 2h. 59m., Decl. $+23^{\circ}\cdot7$, and ends in R.A. 2h. 59m., Decl. $+32^{\circ}\cdot0$. The meteor must have been a very bright one, as the trail, which is perfectly straight, is strong and clear. Near the southern end of its path the meteor appears to have exploded, as there is a distinct enlargement of the trail at that point. The path continues a little beyond this in the same direction but fainter, and there is evidence of a second minor explosion about 1° from the first. It may be remembered that in the case of Mr. Butler's meteor photograph, reproduced in Nature two years ago (vol. liii. p. 131) the meteor underwent a change of direction after it exploded.

Prof. Barnard has sent to the Royal Astronomical Society a copy of the photograph obtained with each camera.

The Alleged Former Redness of Sirius.—This subject is discussed at length by Dr. H. Samter in the September number of *Himmel und Erde*, and answered in the negative sense so far as human records are concerned. Besides some ambiguous references of Ptolemy and Aratus to the colour of the star, there is Horace's reference to *rubra canicula* or red dog-star, and Pliny's description of the colour as redder than Mars. But the